# MONTHLY SCIENTIFIC REVIEW ON MPOX VIRUS

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All informations comes from a valid and credible source.

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## Situation at a glance

- The mpox outbreak continues in Madagascar. As of 15 March 2026, Madagascar has reported 368 confirmed cases, including 1 death, making it the African country with the highest number of mpox cases in recent weeks. The Democratic Republic of the Congo has recorded 288 confirmed cases to date, with no reported deaths.
- As of 3 April 2026, 8 mpox cases have been detected on Réunion Island, including 3 imported from Madagascar.
- In Mayotte, as of 18 March 2026, 11 mpox cases have been identified.
- In the Comoros, 28 confirmed mpox cases had been reported as of 15 March 2026.

# Scientific articles

This section presents relevant articles published on peer-reviewed scientific journals or pre-print platforms.

**This week, discover breakthroughs in chikungunya surveillance, and clinical description.**

2026-04-02

## Digital PCR as a potential reference measurement procedure to support monkeypox virus/Orthopoxvirus external quality assessment schemes.

**Journal**: Methods

**Authors**: Samreen Falak, Jörn Beheim-Schwarzbach, Alexander Hübner, Martin Kammel, Annemarie Martin, Hans-Peter Grunert, Ulf Dühring, Heinz Zeichhardt, Robert Ehret, Martin Obermeier, Alina Groß, Ingo Schellenberg, Andreas Kummrow, Esmeralda Valiente

This study developed a dPCR method for absolute quantification of MPXV genomes, demonstrating good correlation with qPCR and enabling reliable value assignment of MPXV reference materials, offering a calibration-free alternative for viral load testing.

**See details**

2026-03-16

## Imported Cases of Monkeypox Virus Clade Ia - China, 2025.

**Journal**: China CDC Wkly

**Authors**: Danlei Liu, Ye Lu, Chunli Hu, Shiwei Yu, Liming Xue, Guannan Zhang, Zaijiong Yi, Mao Mao, Shenwei Li, Qiang Wang, Zilong Zhang, Zhengan Tian

Two imported monkeypox virus (MPXV) clade Ia cases from DRC were detected in Shanghai, China, in 2025. This highlights the risk of MPXV importation via international travel and emphasizes the importance of port entry screening, surveillance, and coordinated prevention strategies.

**See details**

2026-03-22

## Optimal Specimens and Lesions for Mpox Diagnosis Using Real-Time PCR, South Korea.

**Journal**: Emerg Infect Dis

**Authors**: Dong-Min Kim, Munawir Muhammad, Jin Won Kim, Choon-Mee Kim, Jun-Won Seo, Da Young Kim, Na Ra Yun, Beomgi Lee, Minji Lee, Jeong Hyun Lee, Myung-Min Choi, Yoon-Seok Chung

We analyzed 612 specimens from 135 patients with monkeypox virus clade IIb in South Korea by using real-time PCR. Crusted and anogenital skin lesions and rectal swab specimens demonstrated the highest positivity rates. Viral loads varied by lesion type, anatomic site, and time since symptom onset, supporting our specimen selection for clade IIb detection.

**See details**

2026-03-25

## Monkeypox virus replication and Host response in vaginal and ectocervical epithelial cells.

**Journal**: Virulence

**Authors**: Davide Mariotti, Ludovica Picarone, Alessandra D'Auria, Luigi Rosa, Valentina Valeriani, Daniele Pietrucci, Silvia Meschi, Fabrizio Carletti, Valentina Mazzotta, Guido Antonelli, Enrico Girardi, Carolina Scagnolari, Giovanni Chillemi, Andrea Antinori, Fabrizio Maggi, Giulia Matusali

MPXV infects vaginal and ectocervical cells, with sex hormones slightly reducing replication. Infection alters gene expression, increasing MMP-1 release, crucial for viral production. Ectocervical cells show stronger interferon response, correlating with slower viral repl

**See details**

2026-03-18

## Monkeypox virus protein OPG188 antagonizes cGAS-STING antiviral signaling pathway to mediate immune evasion.

**Journal**: Proc Natl Acad Sci U S A

**Authors**: Zhaoyi Pan, Shujuan Zhang, Xianbo Geng, Na Wang, Lijiang Zhang, Luyao Wang, Chunhong Yin, Huijiao Zhang, Shujun Liu, Ling Zhang, Jing Fan, Guangjian Xue, Rui Li, Tianle Li, Yating Yu, Hangping Yao, Changzhong Jin, Nanping Wu

MPXV protein OPG188, a poxin with nuclease activity, degrades 2'3'-cGAMP to inhibit cGAS-STING antiviral signaling, aiding immune evasion. Key residues and small molecules targeting OPG188 restore antiviral responses, offering potential therapeutic avenues.

**See details**

2026-03-30

## Evaluation and Clinical Validation of Pan-Specific and Clade-Specific Diagnostic Real-Time PCR Assays for Monkeypox Virus.

**Journal**: J Med Virol

**Authors**: Hong Chang, Tin Hang Hung, Binbin Li, Bobby Lim-Ho Kong, Ashwathi Asha Madhaven, Yue Wang, Ming-Shan Tsai, Dan Deng, Zhanfeng Cui

This study developed and validated rapid, direct real-time PCR assays for detecting and differentiating Clade I and II MPXV, showing 100% sensitivity and specificity, minimal cross-reactivity, and results in under 1 hour without nucleic acid extraction.

**See details**

2026-03-14

## Genomic Diversity of Clade Ia Monkeypox Virus in the Central African Republic, 2019-2024.

**Journal**: Emerg Microbes Infect

**Authors**: Alexander Tendu, Lingjing Mao, Stéphane Descorps-Declère, Benjamin Selekon, Ella Farra, Camille Besombes, Sandra Garba-Ouangole, Huguette Dorine Simo, Délia Doreen Djuicy, Raphäel Mbaïlao, Jean Méthode Moyen, Ernest Kalthan, Pierre Somse, Thomas D'aquin Koyazegbet, Richard Njouom, Sebastian Duchene, Arnaud Fontanet, Gary Wong, Emmanuel Nakouné, Antoine Gessain, Nicolas Berthet

New Clade Ia MPXV genomes from CAR (2019-2024) show sustained homogeneity with expanding sub-lineages, increased diversity, and regional clustering. Limited APOBEC3 activity suggests recent zoonotic origins and short human-to-human transmission chains.

**See details**

2026-03-27

## Prevalence and Molecular Profiling of Merkel Cell Polyomavirus in Patients With Monkeypox Virus Infection.

**Journal**: J Med Virol

**Authors**: Sara Passerini, Davide Mariotti, Sara Messina, Valentina Mazzotta, Giulia Matusali, Andrea Antinori, Valeria Pietropaolo, Fabrizio Maggi, Luigi Rosa

MCPyV detected in 34.8% of 66 Mpox patients, higher in anal swabs, with persistence in some oropharyngeal samples at 9-month follow-up. No viral integration observed, with both early and late MCPyV genes, along with viral microRNAs, detected. Among HIV-positive individuals, MCPyV load varied by sample type.

**See details**

2026-04-01

## Dynamic shift in the dominant transmission route of clade Ib monkeypox virus across networks with sexual and nonsexual contacts.

**Journal**: Sci Adv

**Authors**: Fuminari Miura, Ka Yin Leung, Maria Xiridou, Marten van Antwerpen, Nicola Low, Niel Hens, Emmanuel Hasivirwe Vakaniaki, Jacco Wallinga

The study models clade Ib monkeypox transmission in the DRC, showing a dynamic shift from sexual to nonsexual contact as the dominant route, leading to larger epidemics and changing age-specific infection and mortality patterns. This underscores the need for adaptive monitoring and control measures in at-risk countries.

**See details**

2026-03-27

## Primary human intestinal organoids model enteric infection of monkeypox virus and enable scalable drug discovery.

**Journal**: Sci Adv

**Authors**: Pengfei Li, Xin Wang, Jiangrong Zhou, Yang Yao, Yining Wang, Guige Xu, Rick Schraauwen, Ana Maria Gonçalves da Silva, Charlotte de Henau, Roberto Incitti, Dewy Mae Offermans, Annemarie C de Vries, Denis E Kainov, Intikhab Alam, Karine Raymond, Amaro Nunes Duarte-Neto, Marcel J C Bijvelds, Qiuwei Pan

MPXV infects human intestine, causing lesions; primary intestinal organoids support infection by multiple strains. Drug screening identified 12 safe-in-human agents, including clofarabine, with potent antiviral activity. This work aids understanding of mpox clinical manif

**See details**

2026-04-04

## Evidence of monkeypox virus clade IIb lineage A.2.2 in the Republic of the Congo and co-circulation of clade Ia, Ib and clade IIb.

**Journal**: Nat Med

**Authors**: Felix Koukouikila-Koussounda, Claude Kwe Yinda, Pembe Issamou Mayangue, Dachel Aymard Eyenet Boussam, Reiche Golmard Elenga, Leadisaelle Hosanna Lenguiya, Ghislain Dzeret Indolo, Bani Reize Vishnou Ampiri, Lucette Nathalie Macosso, Igor Judicaël Louzolo, Isaac Samuel Onyakouang, Jordy Exaucé Lyelet Demboux, Jean Medar Kankou, Aristide Gilbert Nianga, Avelin F Aghokeng, Vincent Jacobus Munster, Fabien Roch Niama

First confirmed case of MPXV clade IIb lineage A.2.2 in Congo, alongside clades Ia, Ib, and another IIb lineage. Phylogenetic analysis links it to West African strains, emphasizing the need for enhanced surveillance and public health measures.

**See details**

# Relevant news

This section presents official reports from health agencies, manufacturers and press releases with reliable sources.

2026-03-23

### A new case of monkeypox (Mpox): The ARS calls for vigilance

**Source**: ARS

A new monkeypox (Mpox) case was reported in Mayotte on March 18, 2026, prompting health authorities to isolate the patient, trace contacts, and offer vaccination. Vigilance is crucial due to ongoing virus circulation in the Indian Ocean region. Monkeypox, transmitted via close contact, presents as a skin rash and flu-like symptoms, typically resolving in 2-3 weeks.

**See details**

2026-03-23

### CP: A new case of monkeypox (Mpox): The ARS calls for vigilance

**Source**: ARS

New monkeypox case in Mayotte on March 18, 2026, prompting isolation, contact tracing, and vaccination. Persistent regional circulation necessitates vigilance, barrier measures, and vaccination. Transmission occurs via close contact with lesions, objects, or sexual contact, with symptoms including rash, fever, and lymphadenopathy.

**See details**

2026-04-10

## Confirmation of a new imported case of monkeypox (Mpox): although the risk of transmission is limited, the ARS calls for maintaining vigilance

**Source**: ARS

New imported monkeypox case in Mayotte managed with isolation, contact tracing, and vaccination. Secondary transmission risk is low, but vigilance is advised due to regional virus circulation. Barrier measures and vaccination are recommended.

**See details**

2026-03-30

## Tpoxx should no longer be used to treat mpox, European drug regulators say

**Source**: CIDRAP

The EMA recommends discontinuing Tpoxx for mpox treatment due to four studies showing no benefit over placebo. Initial approval was based on animal models. Current mpox outbreaks, primarily in Africa, are driven by sexual and household transmission, with sustained community transmission risks.

**See details**

2026-04-01

## Berlin sees rapid rise in locally acquired mpox clade 1b cases

**Source**: CIDRAP

A rapid increase in locally acquired mpox clade 1b cases among MSM in Berlin, Germany, has been reported, with 34 of 35 cases likely acquired locally. Genetic sequencing suggests a shared transmission network. Berlin has been a hotspot for mpox transmission, and continued surveillance, testing, and vaccination are crucial to limit spread.

**See details**

2026-04-03

## Discover L’actu Santé #11, the newsletter of the ARS La Réunion

**Source**: ARS

ARS La Réunion's newsletter highlights health initiatives: a new nutrition program targeting diabetes/obesity, school HPV/meningococcal vaccinations, child health program, leptospirosis vigilance, digital health record's 4th anniversary, project calls, France Santé device

**See details**

2026-03-23

## Quick takes: Fewer UK meningitis cases, clade 1 mpox in Missouri, diphtheria risk across Africa

**Source**: CIDRAP

UK meningitis cases at University of Kent decrease to 29, with 2 deaths, primarily group B in young adults. Missouri reports first clade 1 mpox cases, unrelated and not locally acquired. Africa faces diphtheria surge, with 29,000 suspected cases and 1,420 deaths since January 2025, mostly in unvaccinated children.

**See details**

2026-03-16

## Quick takes: Clade 1 mpox found in NYC, cruise passenger norovirus outbreak sickens 150, Cambodia tracks second avian flu case

**Source**: CIDRAP

NYC reports first clade 1 mpox case, linked to European travel, with 12 US cases total. Cruise ship norovirus outbreak sickens 150. Cambodia confirms second H5N1 avian flu case, with high case-fatality rates.

**See details**

2026-03-10

## Recent pandemic viruses, including SAR-CoV-2, spread directly to people without adaptation, researchers say

**Source**: CIDRAP

Zoonotic viruses, including SARS-CoV-2, show no pre-outbreak adaptation in intermediate hosts or labs; selection changes occur post-human transmission, except for 1977 H1N1, suggesting a lab origin.

**See details**

2026-04-03

## State public health labs step up as CDC pauses testing for various pathogens, including rabies, mpox

**Source**: CIDRAP

CDC has temporarily paused testing for several infectious diseases, including rabies and mpox, to evaluate its processes. State and local labs are stepping in, but concerns arise about potential delays in disease detection and coordination. The pause is unrelated to recent federal funding cuts, and some tests may resume in weeks, though full restoration could take months.

**See details**

# Clinical Studies

This section presents relevant clinical trials.

2025-02-19

## Phase 3 Infant Safety & Immunogenicity Trial of MVA-BN® in DRC

**Status**: Recruiting

**Sponsor(s)**: Jean-Pierre Van geertruyden, Ace Africa, PENTA Foundation, Bavarian Nordic, European and Developing Countries Clinical Trials Partnership (EDCTP), University of Kinshasa, CEPI

This Phase 3 trial evaluates the safety and immunogenicity of the MVA-BN mpox vaccine in DRC infants/children (4-24 months), comparing full-dose (0.5 mL) vs. half-dose (0.25 mL) regimens to demonstrate non-inferiority to adult full-dose, aiming to optimize dosing for this age group.

**See details**

2025-02-19

## Phase 3 Maternal Safety & Immunogenicity Trial of MVA-BN® in DRC

**Status**: Active not recruiting

**Sponsor(s)**: Jean-Pierre Van geertruyden, PENTA Foundation, Ace Africa, European and Developing Countries Clinical Trials Partnership (EDCTP), Bavarian Nordic, University of Kinshasa

Phase 3 trial in DRC evaluates MVA-BN mpox vaccine safety & immunogenicity in 359 pregnant/ postpartum women, comparing maternal vs. postpartum dosing & immune transfer to neonates.

**See details**

2026-01-23

## A Randomized Clinical Trial Investigating the Safety, Reactogenicity, and Immunogenicity After Immunization With an mRNA-based Mpox Vaccine Candidate in Africa

**Status**: Recruiting

**Sponsor(s)**: BioNTech (Group), Coalition for Epidemic Preparedness Innovations

This is a randomized, double-blind, placebo-controlled study which aims to assess the safety, reactogenicity, and immunogenicity after one and two doses of BNT166a or placebo in healthy participants.

**See details**

2025-02-17

## DiagRaMIE Mpox Virus-RDC for the Diagnostic of Monkeypox

**Status**: Not yet recruiting

**Sponsor(s)**: Assistance Publique - Hôpitaux de Paris, NG Biotech, Commissariat A L'energie Atomique

NG-Test Monkeypox is a rapid, immunochromatographic assay for quick detection of monkeypox virus, showing high sensitivity and specificity in preclinical trials, with ongoing clinical validation for CE marking, offering an alternative to PCR.

**See details**

2024-12-03

## Tecovirimat for Treatment of Monkeypox Virus - Study Extension Providing Standard of Care Only

**Status**: Completed

**Sponsor(s)**: National Institute of Allergy and Infectious Diseases, Institut National de Recherche Biomédicale. Kinshasa, République Démocratique du Congo

The purpose of the PALM007 extension is to further characterize the clinical and natural history of mpox, and to provide standard of care (SOC) during the ongoing outbreaks.

**See details**

# Guidelines and practical information

This section lists official manuals of recommendations for clinical practice or public health policy published by leading health organizations.

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| **COREB** | **Mpox Practical Guidance (2025)** |
| **WHO** | **Infection prevention, control, and WASH measures for home care and isolation for mpox in resource-limited settings: Interim operational guidance (2025)** |
| **NIAID** | **NIAID Research Agenda for Mpox (2024)** |
| **UKHSA** | **Mpox: Scenarios and technical elements for preparedness and response to clade I (2024)** |
| **HAS** | **Opinion of the Haute Autorité de Santé on the vaccination strategy against Mpox (2024)** |
| **WHO** | **Temporary recommendations issued to States Parties regarding the PHEIC associated with the upsurge of mpox (2024)** |
| **WHO** | **Strategic Framework for Enhancing Mpox Prevention and Control, 2024–2027 (2024)** |
| **WHO** | **Surveillance, case investigation and contact tracing for mpox (monkeypox): Interim guidance (20 March 2024)** |
| **WHO** | **Diagnostic testing for monkeypox virus (MPXV): Interim guidance (2023)** |
| **COREB** | **Monkeypox virus infection: Operational sampling procedure (2023)** |
| **COREB** | **Monkeypox virus infection: Identification and clinical management in France (2023)** |
| **SPF** | **Case and contact definitions and procedures for contact tracing (2023)** |
| **ECDC** | **Public health considerations for mpox in EU/EEA countries (2023)** |

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| **WHO** | **Public health advice on mpox in congregate settings** |
| **WHO** | **Public health advice for gay, bisexual and other men who have sex with men regarding the recent mpox outbreak** |
| **HCSP** | **Revision of the smallpox preparedness and response plan (2022)** |
| **WHO** | **Monkeypox strategic preparedness, readiness and response: Operational planning guidelines (2022)** |
| **WHO** | **Vaccines and immunization for monkeypox: Interim guidance (2022)** |
| **WHO** | **Monkeypox Strategic Preparedness, Readiness and Response Plan (2022)** |
| **WHO** | **Public health advice for sex workers on mpox (2022)** |
| **WHO** | **Risk communication and community engagement: Public health advice on understanding, preventing and addressing stigma and discrimination related to mpox (2022)** |
| **ECDC** | **Monkeypox infection prevention and control guidance for primary and acute care settings (2022)** |
| **ECDC/ WHO** | **Risk communication and community engagement approaches during the mpox outbreak in Europe (2022)** |
| **ECDC** | **Considerations for contact tracing during the mpox outbreak in Europe (2022)** |
| **WHO** | **Clinical characterization of mpox, including monitoring of therapeutic interventions (2022)** |
| **WHO** | **Clinical management and infection prevention and control for monkeypox: Interim rapid response guidance (2022)** |
| **ECDC** | **Navigating mpox: Considerations for gay, bisexual and other men who have sex with men (2022)** |

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| **COREB** | **Monkeypox: Dermatological diagnostic support and symptomatic management (2022)** |
| **HCSP** | **Guidance for managing confirmed mpox cases at risk of severe disease and high-risk contacts (2022)** |
| **HCSP** | **Prevention measures against Monkeypox virus infection (2022)** |
| **HCSP** | **Guidance for managing suspected, probable or confirmed Monkeypox virus cases (2022)** |

# Fact sheets

### Transmission

Mpox is a zoonotic infectious disease caused by the mpox virus (MPXV), belonging to the Poxviridae family and Orthopoxvirus genus, similarly to smallpox. There are two known clades of MPXV: clade I originate from eastern regions in Central Africa and clade II prevalent in West Africa. Clades I and II are further subdivided into four distinct subclades: Ia, Ib, IIa, and IIb. Variants Ib and IIb which emerged in recent years exhibit APOBEC-3 type mutations, indicative of viral adaptation to human hosts. Clade I MPXV infections are at greater risk of severe disease, with a case fatality rate (CFR) ranging from 3 - 10%, while clade II MPXV generally causes milder symptoms, lower viremia and a CFR of 1 - 3%. The global mpox outbreak caused by the clade IIb in 2022-2023 showed a CFR of less than 0.1%./n/nClades Ia and IIa are transmitted from animals to humans through contact with live and dead animals through hunting or consumption of contaminated bushmeat. The animal reservoir remains unknown but African rodents such as tree squirrels, and Gambian pouch rats are currently considered to be strong candidates. Secondary human-to-human transmission of these clades occasionally occurs via respiratory droplets, direct close contacts with body fluids or skin abrasions, or through contaminated. Clades Ib and IIb have demonstrated sustained human-to-human transmission. Populations at higher risk of zoonotic transmission include small households or communities living in rural areas, where animal reservoirs may reside. High-risk groups for community transmissions also include sex workers, MSM with multiple sexual partners, or any other individuals with multiple casual sexual partners.

### Diagnosis

Due to the range of health conditions that cause similar-appearing skin lesions, clinical differentiation of mpox is difficult without laboratory diagnosis. Detecting viral nucleic acids using polymerase chain reaction (PCR) is the gold standard technique for confirming MPXV diagnosis. The reliability of results depends on the type of biological specimen, with optimal samples obtained directly from skin lesions. In the absence of visible epidermal wounds, testing can be conducted on mucosal specimens using oropharyngeal or rectal swabs. Point-of-care and antigen rapid diagnostic test are rapid, cost-effective and easily interpretable diagnostic tools for use by health workers. POC tests such as GeneXPert (Cepheid, U.S.) and Standard M10 MPX/OPX® (SD Biosensor, South Korea) show promising clinical sensitivity on lesion samples and oropharyngeal swabs for clade I MPXV diagnosis.

### Symptoms

The incubation period of MPXV ranges from 2 to 21 days, although some people may contract the infection without developing symptoms. Patients are considered infectious from the time of symptom onset until skin lesions have crusted and a fresh layer of skin has formed underneath. The disease is often mild, self-limiting with symptoms usually resolving spontaneously in two to four weeks but may last longer in immunocompromised individuals. Symptoms can be severe, and patients may develop multiple lesions. Complications may occur, such as septicemia, encephalitis. Higher case fatalities have been observed in vulnerable groups, such as young children, individuals with a weakened immune system or with advanced

HIV infection. Contracting mpox during pregnancy may lead to complications, such as congenital mpox, stillbirth or even death of the newborn. MPXV is classified as a risk group 3 (RG-3) pathogens and requires stringent containment and appropriate safety measures to minimize risk to laboratory personnel. Primary preventive vaccination is recommended for health workers, including laboratory personnel at risk for repeated exposure.

## Treatment

Therapeutic management relies mainly on supportive care. One antiviral, tecovirimat, developed to treat smallpox, has been approved by the FDA and EMA as a compassionate use for the treatment of mpox. Several clinical studies (UNITY, EPOXI, MOSA, STOMP, PALM007, PLATINUM/PLATINUM-CAN) are underway in different regions of the world to evaluate the clinical efficacy of tecovirimat in treating mpox in adults and children.

## Vaccination

There are currently three vaccines approved for the prevention of mpox. These third-generation smallpox vaccines contain non-replicating or minimally replicating strains of vaccinia virus such as MVA-BN (Bavarian Nordic, Denmark), LC16 (KMB Biologics, Japan) and OrthopoxVac (Russia). The most administered vaccine has been the MVA-BN, for which a favorable safety profile with mild side. The vaccination is recommended for the residents of high-risk areas, sex workers, MSM, health workers exposed to mpox, and contacts of mpox patients, including children. MVA-BN is not yet widely available in countries where the disease is endemic.